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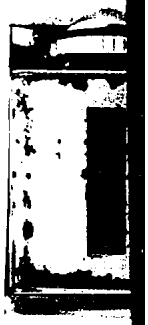

LABORATORY METHODS IN SOVIET SANITATION PRACTICES

[Comment: The following report is a translation of an article by A. Kalyayev, laboratory physician of the Yeniseysk sanitation-epidemiological station, and Ye. Usanova, physician of the laboratory of the hospital in Yeniseysk, published in Meditsinskiy Rabotnik, Vol 17, No 96, Moscow, 30 November 1954.]

Laboratory work in the USSR has systematically been expanded and improved. Our industries now produce excellent optical equipment, reagents, and glassware. Soviet physicians do not plan their work without the use of laboratory methods of investigation of both the patient and the environment surrounding him.

Analytical laboratory data are especially important in the practice of sanitation-epidemiological stations. Many physicians engaged in sanitation work and epidemiologists are well acquainted with the principles of laboratory work. They know how to utilize laboratory data correctly and are capable of doing the work themselves.

Unfortunately, there are also sanitation physicians who are only formally acquainted with laboratory methods of investigation and who spend the greater part of their time writing, composing endless accounts, summaries, resumes, etc. No one requires that sanitation physicians know all the fine details of laboratory work, but they are obliged to know the basic fundamentals and the theories of practical investigative analysis. For example, while investigating a food enterprise, a physician observed serious laxity in hygienic requirements. He, naturally, wrote an official account of it, but this was not enough. He should have convincingly explained to the workers the harm and epidemiological danger of the observed inadequacies. In such cases analytical data serve as an irrefutable proof.

In our daily practice, we laboratory workers strive to meet the requirements of the sanitation physicians and they, on the other hand, strive to have close contact with us. This leads to favorable results.

At this point we might bring up the matter of how a sanitation physician budgets his time. The physician is responsible for carrying out his so-called "rounds." He supervises the sanitation of streets, courtyards, etc. If he, however, carefully organizes the work of his assistants and, what is most important, demands that the members of the militia carefully maintain the cleanliness of their territory, he will have more time to devote to his "clinic," i.e., his laboratory.

The same thing might be said of epidemiologists. They cannot succeessfully carry out epidemic prevention measures if they do not possess a complete knowledge of laboratory work and especially of the principles of bacteriorological and serological investigations.

In the struggle with infectious diseases, our laboratory has very close contact with the epidemiological division of the sanitation-epidemiological station. We have worked out an arrangement whereby the laboratory, in every instance of analysis with negative coprological indications (in the investigation of dysentery), immediately informs the epidemiologist, even before bacteriological data are obtained. Having received our notification, the sanitation-epidemiological station immediately takes measures to hospitalize the patient, to investigate the disease focus, and to carry out disinfection. All this contributes to the prevention of the spread of the disease.

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The laboratory always works according to a plan. The analytical plans of the laboratory include examination of all persons who have recovered from gastrointestinal diseases within the preceding year; mass examination of school children and preschool children for helminthoses; examination for brucellosis of workers in slaughterhouses, dairy farms, veterinary workers, and others in contact with animals; and examination of workers in the food industry and sales personnel in produce stores for bacillary diseases and evidence of helminth infestation. Besides this, the caloric content of food in children's institutions is checked regularly and the quality of drinking water and cold drinks is controlled. Both this planned work and the current analytical work of the laboratory is carried out in close cooperation with sanitation physicians, epidemiologists, school physicians, and pediatricians. As time passes, we have become more and more convinced that this professional cooperation is making our prophylactic program more effective.

Here is a characteristic example. In the over-all plan for prophylactic measures, the mass examination of school children for helminthoses was scheduled. Before the examinations were undertaken, the laboratory workers, in collaboration with the school physicians, conducted short lectures in all the classes on helminths. The lectures were accompanied by the showing of appropriate films of preparation of ascarids, etc. The results achieved have exceeded our expectations. Within their own families, many of the children have become good propagandists for skin cleanliness. All the school children willingly underwent examination and not infrequently brought members of their families with them. The sanitation-bacteriological laboratories of the station together with the sanitation physicians take part in maintaining sanitation standards among workers in the food industry. Here too, with the aid of a microscope and projected stereoscopic microscope images we demonstrated the presence of various microorganisms cultured on the spot from dirty and clean utensils and from the hands of the personnel. This served as visual and constructive sanitation propaganda.

It should be noted, however, that so far we do not have at our disposal suitable manual to guide the maintenance of minimum sanitation standards for workers in the food industries. The Institute of Sanitary Education should be concerned with this, and, after preliminary consultation with physicians of the sanitation-epidemiological stations, taking into account their experience and the demands of the masses, such a work should be attempted. The laboratories also play a great role in the struggle against severe gastrointestinal diseases. Our laboratory not only carries out analyses, but also participates in practical prophylactic measures designed to control these infections. We systematically investigate the dynamics of the morbidity, keep a record of persons who have recovered, and periodically examine these people. We likewise assist the epidemiologists in operational work.

To prevent severe gastric diseases, the laboratory has organized the chlorination of water in barrels. Analyses have convinced us that the Bacilli coli titer of water, which has an extremely low titer when taken from the Yenisey River at the point of collection in the summertime, will increase sharply after chlorination.

Sanitation-bacteriological laboratories can and must carry out bacteriological, serological, biochemical, and chemical analyses. Naturally, the laboratory physician must be very well educated. Samples which require complicated analyses cannot always be sent away to the kray or oblast station. At times it is necessary to resolve these complex questions locally. Trade organizations regularly demand consistent and qualified conclusions concerning the quality and usability of various products from the sanitation physician,

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and he, in turn, demands the same from the laboratory. The laboratory physicians are acutely aware of the lack of a reference handbook for all types of products. Government standards (GOST) concerning methods of investigating products do exist, but they do not always suffice. It is necessary that such standards be compiled and published in a single book, with short information reports concerning the requirements for products, and that practical advice concerning chemical analyses be furnished to laboratory workers. Publication of such a handbook would facilitate the work of these laboratory physicians.

The laboratories of the sanitation-epidemiological stations and the clinical diagnostic laboratories do much work, but they do not always receive the necessary assistance and guidance. There is a dire need for the immediate resumption of the publication of the journal Laboratornoye Delo [Publication of this periodical was resumed in January 1955.] All laboratory workers in medical institutions are interested in the existence of such a journal.

In regard to the matter of supplying utensils, reagents, dyestuffs, etc., the main pharmaceutical administration appears to be insufficiently concerned with such affairs. For a number of years, we have not been able to procure regular supplies of sulfuric acid, utensils, etc. Up to the present, there has been no practical solution worked out for supplying laboratories with diagnostic biological preparations (diagnostics, antigens, and serums). According to an order of the Ministry of Health USSR, the peripheral laboratories should be supplied through oblast or kray sanitation-epidemiological stations. But as yet, this is only on paper. With our limited budget, we have had to order preparations from various cities, and these often arrive either improperly compounded or having expired date limits. For example, we are sent serums or seldom-encountered types of Grigoryev-Shiga or Newcastle baccilli, but Flexner and Sonne serums are unobtainable. All this is due to the fact that the public health organs lack responsible people to coordinate the activities of the laboratories and to give thought to furnishing the equipment and supplies needed every day.

Brief mention might be made of laboratory cadres. No one will find a hospital surgical division lacking a surgical physician. Here in Yeniseysk, however, our laboratory has been headed for a long time by a person with no education whatsoever, not even at a general secondary school level (this, unfortunately, is not an isolated instance). A laboratory in a medical institution should be headed by a specialist, a laboratory physician. A laboratory technician with a secondary medical education may be able to perform independent elementary analyses, but to give qualified conclusions, for example, concerning hemograms, urine sediments, or serological analyses, a person must have a highly specialized education.

Fulfillment of the directives of the 19th Congress of the CPSU concerning the universal development of prophylactic measures against diseases is inconceivable without the active participation of laboratory technicians. This large group of medical workers should be given deserved attention and be rendered practical assistance.

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